

What's in a name? Pancreatic pseudocysts, walled-off necrosis, and pancreatic fluid collections

Douglas G. Adler, Ali A. Siddiqui¹

Division of Gastroenterology and Hepatology, School of Medicine, University of Utah, Salt Lake City, Utah, ¹Division of Gastroenterology and Hepatology, Jefferson Medical College, Philadelphia, PA, USA

Transmural endoscopic drainage of pancreatic fluid collections (PFCs), once a rare procedure reserved for only the most aggressive endoscopists at a select few tertiary centers, is now being performed more frequently and by a larger number of providers. There are a number of reasons for this. First, data on risks, benefits, as well as clinical outcomes are more plentiful and mature, giving endoscopists a solid foundation on which to perform these procedures. Second, the rise of advanced training programs in endosonography has led to a larger number of physicians who are comfortable with interventional endoscopic ultrasound (EUS) procedures. Finally, the recent availability of lumen apposing metal stents (LAMS) has provided endosonographers a specialized stent to drain PFCs that are truly designed for an echoendoscope, and not simply a biliary device being used off label, making these procedures even more attractive.^[1-4]

Much is made in the current literature regarding different types of PFCs. The current Atlanta classification, the most widely used schema, segregates PFCs based on their acuity as well as the presence or absence of solid or so-called “nonliquefied” material.^[5]

The Atlanta classification describes a variety of PFCs as acute PFCs, pseudocysts, a sterile or infected necrotic collection, and sterile or infected walled off necrosis (WON). While the authors laud such attempts to categorize PFCs in this manner, and indeed, use the Atlanta classification clinically and in our research endeavors, it is becoming clear that strict definitions such as these are sometimes clinically unhelpful since many PFCs do not squarely fit into the aforementioned categories, therefore limiting the value of such a schema.

We would agree with the authors of the Atlanta classification that acute peri-PFCs or acute necrotic collections rarely warrant endoscopic transmural interventions as they lack mature walls and may spontaneously resolve with conservative measures and without intervention. We would also agree that a period of approximately 4 weeks is needed for many PFCs to mature and ideally, adhere to the wall of the stomach or small bowel to further facilitate safer transmural drainage. The issue becomes much thornier, however, when attempting to apply the terms “pseudocyst” and “WON” in clinical practice to these mature PFCs.

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Address for correspondence

Dr. Ali A. Siddiqui, Division of Gastroenterology and Hepatology, Jefferson Medical College, Philadelphia, PA, USA.

E-mail: aas138@jefferson.edu

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According to the current classification system, a pseudocyst “is surrounded by a well-defined wall and contains essentially no solid material.” Elsewhere in the document, pseudocysts are described as having “no nonliquid component.” WON, we are told, “consists of necrotic tissue contained within an enhancing wall of reactive tissue.” Furthermore, “WON derives from necrotic pancreatic parenchyma and/or necrotic peripancreatic tissues and may be infected, may be multiple, and may be present at sites distant from the pancreas.” In addition, a WON may or may not communicate with the pancreatic duct, whereas pseudocysts are presumed to have a communication with the pancreatic duct given the high concentrations of amylase in their cyst fluid. Therefore, under current definitions, both pseudocysts and WON can communicate with the pancreatic duct, further blurring the lines of distinction between them. These definitions have some importance beyond simple academic nomenclature, as patients harboring PFCs with solid debris tend to have worse outcomes and more adverse events than those harboring PFCs that contain only fluid.^[1]

A problem that many endoscopists have encountered is that many PFCs do not squarely fit into the above-mentioned system. Many lesions that were felt on cross-sectional imaging (especially computed tomography (CT) scans) to be pseudocysts are found to contain significant solid debris at the time of EUS-guided transmural drainage, possibly necessitating future debridement and direct endoscopic necrosectomy. While it is recognized that magnetic resonance imaging (MRI) may be superior to CT in the detection of solid debris within a PFC, not all patients can or do undergo MRI studies before endoscopic drainage. Does the presence of solid debris suddenly make the PFC a WON and not a pseudocyst? Similarly, anyone who has done an appreciable number of EUS-guided transmural PFC drainages has encountered PFCs that have inarguably replaced portions of the pancreatic parenchyma in the setting of pancreatic necrosis and look for all the world like a WON on imaging, but on EUS are found to contain only fluid contents. Does the absence of solid debris in a lesion that has replaced pancreatic parenchyma in a patient with pancreatic necrosis suddenly make the lesion a pseudocyst and not WON? Perhaps the dead pancreatic tissue has completely liquefied. Finally, most lesions described as pseudocysts are found to contain at least a small

amount of solid debris, further complicating matters. How much debris in a PFC would we allow before we consider it to be WON and not a pseudocyst? How could we quantify the amount of debris accurately? Relatedly, over the past several years, the authors have encountered a striking number of PFCs that are somewhat difficult to fully define under the current schema, prompting a reconsideration of the terminology and nomenclature we use.

Are terms such as “pseudocyst” and “WON” truly helpful in ALL cases given how many lesions have features of both pseudocysts and WON? Would it not just be simpler to describe these types of PFCs as “mature PFCs” with a qualifying comment to describe the presence or absence of solid material within the collection? Such a terminology, while less specific than the Atlanta classification uses, is more inclusive and still allows for the prediction of clinical outcome and risk of adverse events when planning transmural endoscopic drainage given what we know about PFCs containing solid material. In addition, the qualifier regarding the presence or absence of solid debris would still allow for the classification of these lesions when outcomes are being systematically studied. The rise of LAMS and the newfound ease with which an endoscope can be inserted directly into a PFC for direct inspection and debridement when using these stents have allowed the discovery and removal of solid debris that may not have been previously appreciated.

The authors of this editorial have great respect for the hard work and time that went into the creation of the current Atlanta classification, and we do not mean to diminish those efforts. We simply wish to bring up the point that many times the PFCs we are called upon to drain have themselves not read the Atlanta classification, and thus appear to feel free to defy its definitions. A broader and more inclusive terminology, as suggested above, may make our lives a little easier and foster more widespread agreement when describing PFCs.

REFERENCES

1. Siddiqui AA, Adler DG, Nieto J, *et al.* EUS-guided drainage of peripancreatic fluid collections and necrosis by using a novel lumen-apposing stent: A large retrospective, multicenter U.S. experience (with videos). *Gastrointest Endosc* 2016;83:699-707.
2. Walter D, Will U, Sanchez-Yague A, *et al.* A novel lumen-apposing metal stent for endoscopic ultrasound-guided drainage of pancreatic fluid collections: A prospective cohort study. *Endoscopy* 2015;47:63-7.
3. Shah RJ, Shah JN, Waxman I, *et al.* Safety and efficacy of endoscopic

- ultrasound-guided drainage of pancreatic fluid collections with lumen-apposing covered self-expanding metal stents. *Clin Gastroenterol Hepatol* 2015;13:747-52.
4. Lee BU, Song TJ, Lee SS, *et al.* Newly designed, fully covered metal stents for endoscopic ultrasound (EUS)-guided transmural drainage of peripancreatic fluid collections: A prospective randomized study. *Endoscopy* 2014;46:1078-84.
 5. Banks PA, Bollen TL, Dervenis C, *et al.* Classification of acute pancreatitis – 2012: Revision of the Atlanta classification and definitions by international consensus. *Gut* 2013;62:102-11.